

REMARKS

Entry of this amendment in this application, and favorable reconsideration of this application based on that amendment and these remarks, are respectfully requested.

Claims 1 through 20 remain in this case. Claims 1, 12, and 15 are amended.

The allowance of claims 7 and 8 is noted.

Claims 12 through 14 were objected to as depending on rejected claims, but are indicated as otherwise directed to allowable subject matter.¹ Claim 12 is amended to be recited in independent form, including all of the limitations of claim 1 upon which it previously depended. Claims 13 and 14 remain dependent on claim 12. Applicant therefore respectfully submits that claims 12 through 14 are now in condition for allowance.

Claims 1 through 6, 11,² 15 through 17, and 20 were rejected under §102(e) as anticipated by the Potts et al. reference³, which the Examiner asserted teaches all of the elements of those claims.⁴

Claims 9, 10, 18, and 19 were rejected under §103 as unpatentable over the Potts et al. reference in view of the Maurer et al. reference⁵. The Examiner found that these claims differ from the Potts et al. reference by requiring that the specified criterion is whether an eye is open or a mouth is closed, but that the Maurer et al. reference teaches an apparatus for sensing facial movements such as these criteria. The Examiner concluded that it would have been obvious to combine these teachings to implement a digital camera with convenient and efficient facial sensing, and rejected the claims accordingly.

¹ Office Action of February 7, 2005, p. 8.

² The Office Action of February 7, 2005 indicates that claims 11 through 13 were rejected, but also indicates that claims 12 through 14 are objected to as depending on rejected claims, but are otherwise directed to allowable subject matter as noted above. For purposes of this response, therefore, Applicant considers claims 12 and 13 to not be rejected under §102.

³ U.S. Patent No. 6,593,956 B1, issued July 15, 2003 to Potts et al.

⁴ Office Action of October 3, 2003, at pages 2 through 4.

⁵ U.S. Patent No. 6,272,231 B1, issued August 7, 2001 to Maurer et al.

Claim 1 is amended to further clarify its patentability over the Potts et al. reference and the other prior art of record in this case. Amended claim 1 now clarifies that the recording step records a still image of the scene. The specification clearly supports this amendment to claim 1,⁶ and therefore no new matter is presented by this amendment.

The method of amended claim 1 provides important advantages in the operation of a digital camera.⁷ More specifically, this claimed method greatly improves the quality of images taken by a digital camera, and improves the efficiency with which the memory of the camera is utilized, by recording still images after analysis of facial characteristics and other criteria. Unwanted and unusable images are simply not taken by the camera if the desired criteria are not met by the current detected, but not yet recorded, image.

These advantages are especially important in connection with the recording ("taking") of still images ("pictures"). As is fundamentally evident to all still photographers, whether beginners or experts, the taking of a still picture is an exercise in capturing an expression of a living and ephemeral scene. Especially when human subjects are involved (as in the method of amended claim 1), the moment of a photograph passes quickly; if one takes a photograph in which the human subject is, for that moment, in an unflattering state (eyes closed, mouth open, etc.), the impression of the event or moment can be lost.⁸ And, as is also fundamentally apparent in the art, the memory resources of modern cameras are limited in size, especially if high quality photographs are desired; furthermore, modern digital cameras of modest price have relatively long "lag" times involved in taking an image, and also between successive images.

As such, the advantages of the method of claim 1, which requires the recording of a still image responsive to the evaluating of visual information representative of a human facial characteristic and that satisfies a specified criteria, are especially important to modern still image photographers.

⁶ See specification of S.N. 09/465,242 at page 1, lines 2 through 5; page 4, lines 2 through 9; etc.

⁷ Specification, *supra*, at page 20, line 31 through page 21, line 15.

⁸ Specification, *supra*, page 2, line 17, through page 3, line 5.

Applicant respectfully submits that amended claim 1 is novel over the Potts et al. reference.

Applicant now understands from the current Office Action that the Examiner considers the Potts et al. reference to disclose the evaluating of detected information relative to a human facial characteristic, and that the reference discloses recording in response to evaluating visual or video information.⁹ However, Applicant respectfully submits that, to the extent that the Potts et al. reference teaches the evaluating of visual information, this evaluating is performed in order to control the video camera in its acquisition of future images.¹⁰ The video images acquired in the system disclosed in the Potts et al. reference are recorded regardless of the content of the image, and indeed it is the recorded images that are used in the evaluation that is carried out.¹¹ This disclosed operation of the Potts et al. reference makes no decision regarding whether to record an image based on the evaluating of any visual information. Rather, the video camera of the Potts et al. reference records, and continues to record, video images regardless of the evaluation of the visual information; indeed, the recorded images themselves are used in the analysis. Accordingly, the Potts et al. reference fails to disclose the responsive recording step recited in claim 1.

Applicant notes the comment by the Examiner regarding previous argument on the point of whether the reference shows the "deciding of whether to record an image", in which the Examiner concluded that this deciding is argued but not claimed.¹² Applicant respectfully submits that claim 1 (in its previous form, as well as in its currently amended form) expressly requires the step of evaluating detected visual information relative to a human facial characteristic and a specified criteria, and recording an image responsive to the evaluating step determining that the visual information includes information representative of a human facial characteristic and that satisfies a specified criteria. In the abstract, the claimed thus recites

⁹ Office Action, *supra*, page 3, § 1.

¹⁰ Potts et al., *supra*, column 7, lines 51 through 53 ("... uses that correlation to correct or prevent framing errors.").

¹¹ Potts et al., *supra*, column 7, lines 45 through 49 ("... video based locator 60 analyzes the images in video frames 24 received as digital signals and stored as digital data in a memory storage unit ...," emphasis added).

evaluating a parameter relative to a criteria, and then taking an action responsive to the parameter meeting that criteria. If those actions do not amount to a conditional decision, it is unclear to the undersigned what would, other than the specific words that the Examiner has in mind. Applicant requests that the substance of claim 1 be examined, and that in so doing, that the stated requirement of the recording step, including the condition responsive to which it is carried out, be properly considered.

But in an effort to further advance the prosecution of this case, claim 1 is amended in this paper to now include the limitation that it is a still image that is recorded in the recording step. Applicant submits that this limitation is also not taught by the Potts et al. reference, as will now be explained.

In this regard, Applicant respectfully submits that the recording of video information, namely a sequence of video frames, is qualitatively distinct from the recording of a still image, at least in the context of this invention. As mentioned above, the recording of a still image ("taking of a picture") is the task of capturing a still impression of a living and ephemeral scene, especially when a human is the subject of the image as in claim 1. As is explained in the specification,¹³ if the still image as taken includes a problem with the subject, the opportunity to have a still image of the scene and subject is likely lost. On the other hand, a sequence of video information, especially in the context of the Potts et al. reference, which is directed to real-time video conferencing,¹⁴ is fundamentally a recording of a sequence of events as they happen over time - if a subject in the video sequence blinks, or opens her mouth, or takes some other action, that action is part of the video sequence and thus part of the information that is transmitted or recorded. As such, it is fundamental in the acquisition of video that each and every acquired image is transmitted or recorded in its temporal sequence. There is no need for, nor desire for, conditionally recording any image in the video sequence in response to its context; all images are to be acquired and recorded in sequence, at the acquisition rate of the system. Accordingly, Applicant submits that the step of recording a still image, as now recited in amended claim 1, is

¹² Office Action, *supra*, page 3, second and third full paragraphs.

¹³ Specification, *supra*, page 2, line 33 through page 3, line 5.

¹⁴ Potts et al., *supra*, column 1, lines 6 through 14, etc.

not met by the recording of a sequence of video frames, as performed by the Potts et al. reference, because a sequence of video frames is not a still image.

For these reasons, namely that the Potts et al. reference neither discloses the recording of a still image, nor discloses the recording of any image responsive to an evaluating step determining that the visual information from the scene includes information that is representative of a human facial characteristic and that satisfies a specified criteria, Applicant respectfully submits that amended claim 1 and its dependent claims are novel over the Potts et al. reference.

Applicant also respectfully submits that there is no suggestion from the Potts et al. reference or the other prior art to modify the teachings of the Potts et al. reference in such a manner as to reach the claim.

There is no suggestion from the prior art to modify the Potts et al. system in such manner as to record still images rather than video information. As urged immediately above, the claimed method is directed to the capture and storage of still images, by way of which a photographer is attempting to save a still impression of a scene, especially one including human subjects. As such, the claimed method is directed to assisting the acquisition of a pleasing and flattering still image, often of a scene that is continually changing and can never be recaptured, and likely into a camera of limited memory resources and limited capability to quickly acquire another image. On the other hand, the Potts et al. system is directed to the acquisition of real-time video for video conferencing applications, in which there is no such desire or need to accurately capture a still image. Why would one modify the Potts et al. system to conditionally acquire still images, for example according to facial criteria? Such conditional recording would be of no use, and indeed would destroy (by the absence those frames that do not meet the criteria) the sequence of events that the system seeks to convey in a video conference. As such, there is no suggestion from the Potts et al. system to modify its own teachings to capture still images.

Nor is there suggestion to modify the Potts et al. system to conditionally record any image, as required by the claim. As mentioned previously and as discussed above, the Potts et al. system records each video frame in the video sequence. Indeed, to the extent that the Potts et al. reference discloses evaluation of video information, it is analyzing video frames that have previously been recorded. In other words, according to the Potts et al. reference, the recording decision has already been made before the evaluating takes place. Suggestion to modify these teachings so as to reach the claim, especially in the video conference context of the Potts et al. reference, is clearly lacking.

The other prior art of record adds no teachings in this regard to those of the Potts et al. reference. The Maurer et al. reference is directed to the acquisition of facial movements and features from a human subject, for use in later generating an avatar (virtual person). The Sakamoto et al. reference is directed to the searching of already-recorded video for particular features. Neither of these references anywhere mentions the deciding of whether to record a still image of a scene responsive to the evaluating of detected visual information to determine whether that information includes information that is representative of a human facial characteristic and that satisfies a specified criteria.

For these reasons, Applicant respectfully submits not only that the combined teachings of the references fall short of the requirements of amended claim 1, but that there is no suggestion from the prior art to modify the teachings of these references in such a manner as to reach the claims. Applicant therefore respectfully submits that amended claim 1 and its dependent claims 2 through 6 and 9 through 14 are patentably distinct over the applied references.

Similar amendment is also presented to claim 15, to clarify its patentability over the Potts et al. reference and the other prior art of record in this case. Amended claim 15 is now directed to a camera comprising, among other elements, a memory for storing still digital images, and a processor that controls the image detector to detect visual information, that evaluates the detected visual information relative to a human facial characteristic, and that records a still image of the scene, in memory, responsive to its evaluation of the visual

information being representative of a human facial characteristic and satisfying a specified criteria. The specification clearly supports this amendment to claim 15,¹⁵ and that therefore no new matter is presented by this proposed amendment.

The camera of amended claim 15 provides the same important advantages as discussed above relative to amended claim 1, such advantages including the accurate capturing of an expression of an ephemeral scene, and the efficient use of relatively limited memory resource size in the camera, consistent with the limited ability of the camera to quickly respond in taking a first picture or a next picture. These advantages of the camera of claim 15, which result from the capability of the processor to record a still image responsive to the evaluating of visual information representative of a human facial characteristic and that satisfies a specified criteria, are especially important to modern still image photographers.

Applicant respectfully submits that amended claim 15 and its dependent claims are novel over the Potts et al. reference, for similar reasons as discussed above relative to amended claim 1.

First, Applicant submits that the Potts et al. reference does not disclose a processor or other circuitry that records any image in response to evaluating visual information detected by an image detector. To the extent that the Potts et al. reference teaches evaluating visual information, the result of this evaluating is not to record an image that is already detected, but rather "to correct or prevent framing errors" in the recording of future images.¹⁶ In doing so, the Potts et al. video camera system records video frames regardless of the content of the image, and then analyzes the video frame content after recording.¹⁷ Accordingly, the Potts et al. reference fails to disclose the responsive recording function that amended claim 15 requires of its processor.

¹⁵ Specification, *supra*, e.g., at page 1, lines 2 through 5; page 4, lines 2 through 9.

¹⁶ Potts et al., *supra*, column 7, lines 51 through 53.

¹⁷ Potts et al., *supra*, column 7, lines 45 through 49 ("... video based locator 60 analyzes the images in video frames 24 received as digital signals and stored as digital data in a memory storage unit ...;" emphasis added).

As discussed above, and contrary to the argued-but-not-claimed assertion by the Examiner, Applicant respectfully submits that claim 15 (in its previous form, and as currently amended) expressly requires that its processor is for evaluating detected visual information relative to a human facial characteristic and a specified criteria, and is also for recording an image responsive to the that evaluating determining that the visual information includes information representative of a human facial characteristic and that satisfies a specified criteria. These functions clearly amount to a conditional deciding function, and as such Applicant submits that the function found by the Examiner to not be present in the claim is in fact present. Reconsideration on this basis is therefore respectfully requested.

And as in the case of amended claim 1, claim 15 is also amended to advance the prosecution of this case. As before, the processor of claim 15 is recited as also performing the function of recording a still image in the memory responsive to the result of its evaluating. For the same reasons as discussed above relative to amended claim 1, Applicant submits that this limitation is also not taught by the Potts et al. reference.

In summary, as argued above, the recording of video information as taught by the Potts et al. reference is qualitatively distinct from, and does not meet the claim requirement, of the recording of a still image. A still image is fundamentally a fixed-in-time impression (e.g., "snapshot") of a living and ephemeral scene, especially when it involves a human subject, while a recorded sequence of video information, as in the Potts et al. reference, is fundamentally a recording of a sequence of events as they happen over time. Artifacts, such as an open mouth or closed eyes, that the camera of amended claim 15 is intended to avoid in the still images that it records, would simply be part of the action of the recorded video sequence of the Potts et al. system. Not only does the Potts et al. system not need to conditionally record any video frame in the video sequence, indeed such conditional recording would defeat the real-time and smooth sequencing of the video information that it does record. Accordingly, Applicant submits that the Potts et al. reference does not disclose any processor or other element that is for recording a still image, as now recited in amended claim 15. A sequence of video frames is not a still image.

Therefore, because the Potts et al. reference neither discloses a processor for recording a still image, nor discloses a processor for recording any image responsive to an evaluating step determining that the visual information from the scene includes information that is representative of a human facial characteristic and that satisfies a specified criteria, Applicant respectfully submits that amended claim 15 and its dependent claims are novel over the Potts et al. reference.

Applicant also respectfully submits that there is no suggestion from the Potts et al. reference or the other prior art to modify the teachings of the Potts et al. reference in such a manner as to reach the claims.

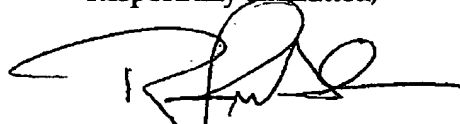
There is no suggestion from the prior art to modify the Potts et al. system or camera in such manner as to reach the claim, specifically by modifying its functionality to record still images rather than video information. The camera of amended claim 15, as discussed above, is so constructed to acquire a pleasing and flattering still image of a human subject in a scene that, for all practical purposes, can never be recaptured, most likely into a limited memory resource and with substantial shutter "lag" before and between shots. But the Potts et al. system is intended to acquire and transmit (and perhaps record) real-time video for a video conference; not only is there no desire or need to capture a still image in such a system, but indeed the converse of such conditional recording (*i.e.*, not recording those frames that do not meet the criteria) would destroy the smooth flow of the video stream, especially in a video conference. And, as discussed, above, suggestion is also lacking to modify the Potts et al. system to conditionally record images. The Potts et al. system records each video frame in the video sequence, evaluating video frames that have been previously recorded to control the camera. The recording decision has been made, in the Potts et al. system, before any evaluating takes place. Suggestion to modify these teachings so as to reach the claim, especially in the video conference context of the Potts et al. reference, is clearly lacking.

And as before, the other prior art applied against the claims or otherwise add no teachings to those of the Potts et al. reference in this regard.

For these reasons, Applicant respectfully submits that the combined teachings of the references fall short of the requirements of amended claim 15 and its dependent claims, and also that there is no suggestion from the prior art to combine or modify these teachings in such a manner as to reach the claims. Applicant therefore respectfully submits that amended claim 15 and its dependent claims 16 through 20 are patentably distinct over the applied references.

For the above reasons, Applicant respectfully submits that all claims in this case will be in condition for allowance. Favorable reconsideration of this application is therefore respectfully requested.

Respectfully submitted,



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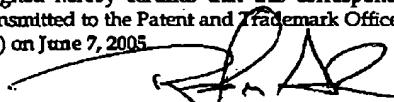
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